



REMARKS²

This Reply and Amendment is intended to be completely responsive to the Office Action dated October 19, 2001 and the Advisory Action dated January 28, 2002.

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Petition for Extension of Time

A petition for a two-month extension of time to respond to the final Office Action is provided herewith. Since the first Reply and Amendment to the final Office Action (dated October 19, 2001) was filed on December 19, 2001 and within two months of the mailing date of the final Office Action (i.e. December 19, 2001), and the Advisory Action dated January 28, 2002 was not mailed within three months of the final Office Action (i.e. January 19, 2001), the three-month shortened statutory period for reply set in the final Office Action expires as of the mailing date of the Advisory Action (i.e. January 28, 2002). Accordingly, the extension fee required pursuant to 37 C.F.R. § 1.17 should be calculated from the mailing date of the Advisory Action (i.e. January 28, 2002).

Information Disclosure Statement

On Page 2 of the Office Action dated October 19, 2001, the Examiner provided that the Information Disclosure Statement filed July 27, 2001 did not comply with 37 C.F.R. § 1.98(a)(2). The Examiner stated:

It has been placed in the application file, but the information referred to therein has not been considered. A copy of the Declaration of M. Eric Taylor dated 4/6/00 was not found.

The Applicants have provided a copy of the Declaration of M. Eric Taylor dated "4/6/00" with this Reply and Amendment.

² The Applicants incorporate by reference the Remarks of the Reply and Amendment filed December 19, 2001.

In the Claims

Claims 30-71 stand rejected. On entry of this Reply and Amendment, Claims 30, 44, 55, 57, 62-63 and 70-71 will be amended for clarity. Accordingly, Claims 30-71 will be pending in this Application.

The claim amendments and status of the claims are shown in Exhibit A "marked-up" to show all the changes relative to the previous version of the claims. 37 C.F.R. § 1.121.

Claim Rejections -- Double Patenting

On Page 3 of the Office Action dated October 19, 2001, the Examiner rejected Claims 30-71 of the Application (Application Serial No. 09/627,522 titled "ALLOY FOR BATTERY GRIDS" filed July 28, 2000) under the judicially created doctrine of nonstatutory double patenting as being unpatentable over Claims 1-33 of U.S. Patent No. 6,117,594 titled "ALLOY FOR BATTERY GRIDS" issued September 12, 2000. The Examiner stated that the "double patenting rejection will be held in abeyance."

Claim Rejections - 35 U.S.C. § 112 ¶ 2

On Page 4 of the Office Action dated October 19, 2001, the Examiner rejected dependent Claims 70-71 under 35 U.S.C. § 112 ¶ 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard the invention. Dependent Claims 70 and 71 have been amended for clarity as prescribed by the Examiner. Accordingly, the rejection of dependent Claims 70-71 under 35 U.S.C. § 112 ¶ 2 has been overcome.

In the Advisory Action dated January 28, 2002, the Examiner indicated that the amendments to dependent Claims 70-71 would overcome the rejection under 35 U.S.C. § 112 ¶ 2.

Claim Rejections -- 35 U.S.C. §§ 102(e) and 103(a)

On Page 5 of the Office Action dated October 19, 2001, the Examiner rejected Claims 30-38, 40-52, 54-56, 63 and 71 as being anticipated by U.S. Patent No. 5,874,186 ("Rao et al.") under 35 U.S.C. § 102(e). On Page 5 of the Office Action dated October 19, 2001, the Examiner alternatively rejected Claims 30-38, 40-52, 54-56, 63 and 71 as being unpatentable under 35 U.S.C. § 103(a) over Rao et al. On Page 5 of the Office Action dated October 19, 2001, the Examiner rejected Claims 39, 53, 57-62 and 64-70 as being unpatentable under 35 U.S.C. § 103(a) over Rao et al. The Examiner stated: "See Office Action of 2/27/01 for the reasons for rejection." The Examiner also stated:

The silver range disclosed by [Rao et al.] overlaps with the claimed range of silver (claims 30 and 44). Thus, the claims are anticipated.

* * *

The examples [of Rao et al.] are used to distinguish between the different casting methods for the lead alloy grids, not the silver content of the lead alloys. Furthermore, [Rao et al.] is not limited to the examples.

* * *

[T]he skilled artisan would have known that "about 0.018%" renders the claimed silver range of "about 0.005 to about 0.017%" obvious. The instant claims and [Rao et al.] use language such as "about" when describing and claiming the ranges of calcium, tin and silver in the lead based alloy. Language such as "about" is interpreted broadly when applying prior art.

The Applicants note that the Office Action dated February 27, 2001 did not provide reasons for the rejection to independent Claim 57 (and corresponding dependent Claims 58-70), which was not pending on February 27, 2001. Further, the remarks by the Examiner in the Office Action dated October 19, 2001 were directed to independent Claims 30 and 44, not independent Claim 57. Accordingly, the Applicants request withdrawal of the rejection to Claims 57-70 under 35 U.S.C. §§ 102(e) and/or 103(a).

Claims 31-43 and 71 depend from independent Claim 30, Claims 45-56 depend from independent Claim 44, and dependent Claims 58-70 depend from independent Claim 57.

Rao et al. does not identically disclose the combination of elements recited in independent Claims 30 and 44 and 57. Rao et al. provides (col. 16, lines 8-38):

FIG. 5 illustrates a preferred embodiment of a grid made by expanding metal techniques using a directly cast strip. . . . As used herein, the terminology "directly cast strip grids" refers to grids made from a directly cast strip made into grids by expanded metal fabrication techniques. . . . Inclusion of silver in the range of about 0.018% to about 0.030% and tin in the range of from about 0.6 or 0.65% to 1.25% provides high temperature corrosion resistance while minimizing creep-induced deformation. The combination of the silver and tin ranges should be coordinated to reduce the susceptibility of the directly cast strip to hot-cracks and hot-tear type defects, particularly when casting strips with thickness greater than 0.040 inches. Unduly high tin and silver levels may cause brittleness in the cast strip particularly when thicker cross-section strips are being cast.

Claims 30, 44 and 57 (as amended and/or as originally presented) recite a combination including, among other elements, a "grid supporting structure" for a "lead-acid cell for a battery" (Claims 30 and 44) or a "plate for use in a battery" (Claim 57) comprising a "lead-based alloy" having "tin" of about "0.8% to about 1.1%," "silver" less than about "0.02%" (Claims 30 and 44) or "0.015%" (Claim 57), and "calcium in an amount such that the ratio of tin to calcium is greater than about 12:1," which is not identically disclosed in Rao et al.

Rao et al. does not disclose the subject matter recited in Claims 30, 44 and 57 with sufficient specificity³ (or disclose a specific example falling within the claimed

³ See M.P.E.P. § 2131.03, emphasis added ("When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with 'sufficient specificity to constitute an anticipation under the statute.'").

range)⁴ to constitute an anticipation of Claims 30, 44 and 57 under 35 U.S.C. § 102(e).

Further, the results shown in the ranges recited in Claims 30, 44 and 57 are not present in Rao et al. See Declaration of M. Eric Taylor dated "4/6/00" showing a decrease in the cracking of an alloy having silver in the range recited in Claims 30, 44 and 57.

The subject matter recited in Claims 30, 44 and 57 would not have been obvious over Rao et al., a single reference, under 35 U.S.C. § 103(a). The combination of Rao et al. would not result in the subject matter recited in independent Claims 30, 44 and 57. Rao et al., alone or in any proper combination, does not disclose, teach or suggest the "grid supporting structure" (Claims 30 and 44) or the "plate for use in a battery" (Claim 57) as recited. Moreover, the suggestion to make the combination of Rao et al. has been taken from the Applicants' own specification (using hindsight), which is improper. Furthermore, to transform the combination of Rao et al. to the "grid supporting structure" (Claims 30 and 44) or the "plate for use in a battery" (Claim 57) as recited would require still further modification, and such modification is taught only by the Applicants' own disclosure.

The subject matter recited in independent Claim 30 (and corresponding dependent Claims 31-43 and 71), independent Claim 44 (and corresponding dependent Claims 45-56) and independent Claim 57 (and corresponding dependent Claims 58-70) is not anticipated by Rao et al. under 35 U.S.C. § 102(e), and considered as a whole, would not have been obvious to a person having ordinary skill in the art under 35 U.S.C. § 103(a). The rejection of Claims 30-38, 40-52, 54-56, 63 and 71 as being anticipated by (or obvious over) Rao et al. under 35 U.S.C. § 102(e) and/or 35 U.S.C. § 103(a), and the rejection of Claims 39, 53, 57-62 and 64-70 as being unpatentable

⁴ Compare Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985) holding that claims directed to a titanium (Ti) alloy with 0.6-0.9% nickel (Ni) and 0.2-0.4% molybdenum (Mo) were anticipated by a graph in a Russian article on Ti-Mo-Ni alloys because the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni and this composition was within the claimed range of compositions.

under 35 U.S.C. § 103(a) over Rao et al., is improper. Therefore, Claims 30-71 are patentable over Rao et al.

* * *

It is submitted that each outstanding objection and rejection to the Application has been overcome, and the Application is in a condition for allowance. On entry of this Reply and Amendment, Claims 30-71 will be pending in this Application. The Applicants respectfully request reconsideration and allowance of all pending Claims 30-71.

The Examiner is invited to telephone the undersigned if such would advance the prosecution of the Application.

Respectfully submitted,

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EXHIBIT A
Marked Up Relative to Previous Version of the Claims

30. (Twice Amended) A lead-acid cell for a battery comprising a container, at least one positive plate and at least one positive negative plate disposed within the container, a separator disposed within the container and separating the at least one positive and the at least one negative plate, the positive plate comprising a grid supporting structure having a layer of active material coupled thereto, the grid supporting structure comprising:

a lead-based alloy comprising lead[:];

tin in the range of about 0.8% to about 1.1%;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1;

silver in the range of greater than 0 to about 0.02%;

wherein the percentages are based upon the total weight of the lead-based alloy.

43^{cmT}
31.-34 (Pending)

44. (Twice Amended) A grid supporting structure for use in a lead-acid battery having at least one positive plate and at least one negative plate disposed within [the] a container, a separator disposed within the container and separating the at least one positive plate and the at least one negative plate, the grid supporting structure having a layer of active material pasted thereto, the grid supporting structure comprising:

a lead-based alloy consisting essentially of lead;

tin in the range of about 0.8% to about 1.1%;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1;

silver in the range of greater than 0 to about 0.02%;

wherein the percentages are based upon the total weight of the lead-based alloy.

45.-54. (Pending)

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55. (Once Amended) The [cell] grid supporting structure as defined in claim 44, contained in a maintenance free battery.

56. (Pending)

57. (Once Amended) A plate for use in a battery comprising a lead-based alloy consisting essentially of:

tin in an amount of about 0.8% to about 1.1%;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1;

silver in an amount of greater than 0 to about 0.015%;

wherein the percentages are based on the total weight of the lead based alloy.

58.-61. (Pending)

62. (Once Amended) The plate of Claim [56 further comprising aluminum] 57 wherein the silver is in an amount of about [0.008 to 0.03%] 0 to 0.03%.

63. (Once Amended) The plate of Claim [56] 58 wherein the [ratio of tin to] calcium is [not less than 15:1] in an amount of about 0.03 to 0.055.

64.-69. (Pending)

70. (Once Amended) The plate of Claim [58 further comprising a container for an automotive battery] 59 wherein the active material is a paste.

71. (Once Amended) The [plate] lead-acid cell of Claim 30 wherein the silver is in an amount of about 0.005 to 0.015% [to 0.02%].